

had been recognised and labelled by Mr. Charlesworth as *M. longirostris*, Kaup. It was found at the depth of 15 feet from the surface in a bed of marl near Greensburgh, in Carolina County, Maryland, and is considered by Mr. Lyell as a miocene fossil.

*Atlantic border.*—Between the Appalachian mountains and the Atlantic there is a wide extent of nearly horizontal tertiary strata, which at the base of the mountains are 500 feet and upwards in height, but decline in level nearer the ocean and at length give place to sandy plains and low islands skirting the coast, in which strata containing marine shells of recent species are met with, slightly elevated above the sea. Occasionally deposits formed in freshwater swamps occur, below the mean level of the Atlantic or overflowed at high tide. In this district Mr. Nuttall discovered, on the Neuse 15 miles below Newburn, in South Carolina, a large assemblage of mammalian bones, including those of the *Mastodon giganteum*, resting on a deposit containing marine shells of recent species. Mr. Conrad presented Mr. Lyell with the tooth of a horse covered with barnacles, from this locality. Professor Owen has examined it and could find no corresponding tooth of a recent species, but considers it as agreeing with the horse-tooth brought by Mr. Darwin from the north side of the Plata in Entre Rios in South America.

*South Carolina.*—Remains of the Mastodon were found in digging the Santee Canal, in a spot where large quadrupeds might now sink into the soft boggy ground.

*Georgia.*—Bones of the Mastodon and Megatherium occur in this district in swamps formed upon a marine sand containing shells of species now inhabiting the neighbouring sea.

Mr. Lyell in conclusion offers the following observations:—

1. That the extinct animals of Bigbone Lick and those of the Atlantic border in the Carolinas and in Georgia belong to the same group, the identical species of Mastodon and elephant being in both cases associated with the horse, and while we have the Mylodon and Megatherium in Georgia, the Megalonyx is stated by several authors to have been found at Bigbone Lick.

2. On both sides of the Appalachian chain, the fossil shells, whether land or freshwater, accompanying the bones of Mastodons, agree with species of Mollusca now inhabiting the same regions.

3. Under similar circumstances Mr. Darwin found the Mastodon and horse in Entre Rios, near the Plata, and the Megatherium, Megalonyx and Mylodon, together with the horse, in Bahia Blanca in Patagonia; these South American remains being shown by their geological position to be of later date than certain marine Newer Pliocene, and Post-pliocene strata. Mr. Darwin also ascertained that some extinct animals of the same group are more modern in Patagonia than the drift with erratics.

4. The extinct quadrupeds before alluded to in the United States lived after the deposition of the northern drift, and consequently the coldness of climate which probably coincided in date with the transportation of the drift, was not as some pretend the cause of their extinction.

## BOTANICAL SOCIETY OF LONDON.

July 7th.—J. E. Gray, Esq., F.R.S. &c., President, in the Chair.

Read "Observations on *Dicranum Dillenii* (MSS. T. T.)," by Dr. Thomas Taylor.

As Dillenius is the first author who has directed the attention of botanists, seventy-five years ago, by a separate paper, to the present moss, his name has been ascribed to it, and yet it is plain that he, as well as all subsequent muscologists, have confounded it with *Dicranum Scoparium* (Linn.). Nor is this without excuse, when we consider the strong resemblance of the habit of both, their nearly equal size, their very general occurrence in Europe as well as in the northern parts of America, and particularly their frequently growing together in the same woods, or on the same banks, in more open and mountainous situations. Besides, the present plant varies very considerably in appearance, so that the one state well figured in 'English Botany,' t. 354, as *Dicranum Scoparium*, would scarcely be supposed to belong to the same species as another state equally well represented by Schwægrichen in his 'Supplement,' t. 42, under the same name. It is the wide limits within which its aspect changes that probably weighed with the editors of the 'Muscologia Britannica' to give both species, well represented, as varieties only of *Dicranum Scoparium*. Submitted, however, to a rigid scrutiny, Dr. Taylor apprehended that the following distinctive marks would be found to be constant; and if so, they would appear to be both sufficiently numerous and sufficiently grave to establish the present species.

1. *Dicranum Dillenii*, though frequently differing in size, is usually the smaller moss.
2. Its leaves are not constantly and but slightly turned to one side, while in *Dicranum Scoparium* they are more loosely set and uniformly falcato-secund.
3. In the present the pedicels are solitary, in the other aggregated within the same *perichæ-tium*.
4. In the former the pedicels are opaque, even immediately below the capsule at the period of full maturity; they are reddish below and brownish-yellow above; while in the latter, even when full-grown, they are somewhat pellucid and of a pale straw-colour.
5. In the former the capsule is erect below and slightly curved above, is nearly equal, has no projecting *struma* yet, with an apophysis pale brown when ripe; in the latter the capsule is curved even long before the fall of the *calyptra*, is very unequal, has a projecting *struma*, and is green when just ripe.
6. In the former the *operculum* is gradually acuminate and falls after the *calyptra*; while in the latter the *operculum*, with a broad base, is suddenly acuminate, and usually falls on and with the *calyptra*.
7. In *Dicranum Dillenii* the teeth of the peristome are narrower and more opaque.
8. The stem is often interruptedly leafy.
9. The leaves are shorter, and have their points less curved.
10. The parts of fructification are greater in proportion to the size of the plant.

In the museum of the Society occurs a *Dicranum* from Newfoundland, from the late Mr. Lambert's herbarium, which being barren, and so not admitting of a comparison of the parts of fructification,